



HID GLOBAL CORPORATION TEST REPORT

FOR THE

**6171BXX BIOCLASS RWKL550
AND 6181BXX BIOCLASS RWKLB575**

**FCC PART 15 SUBPART C SECTIONS SECTIONS 15.207, 15.209
& 15.225 AND RSS-210**

COMPLIANCE

DATE OF ISSUE: APRIL 16, 2007

PREPARED FOR:

HID Global Corporation
9292 Jeronimo Road
Irvine, CA 92618-1905

P.O. No.: 11009832
W.O. No.: 86370

PREPARED BY:

Mary Ellen Clayton
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Date of test: March 22 - April 9, 2007

Report No.: FC07-027

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ADMINISTRATIVE INFORMATION

DATE OF TEST: March 22 - April 9, 2007

DATE OF RECEIPT: March 22, 2007

MANUFACTURER: HID Global Corporation
9292 Jeronimo Road
Irvine, CA 92618-1905

REPRESENTATIVE: Mat Aschenberg

TEST LOCATION: CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

TEST METHOD: ANSI C63.4 (2003), RSS GEN and RSS-210

PURPOSE OF TEST: To demonstrate the compliance of the 6171Bxx bioCLASS RWKL550 and 6181Bxx bioCLASS RWKLB575 with the requirements for FCC Part 15 Subpart C Sections 15.207, 15.209 & 15.225 and RSS-210 devices.

APPROVALS

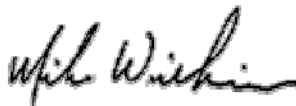
Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:



Joyce Walker, Quality Assurance Administrative
Manager

TEST PERSONNEL:



Mike Wilkinson, EMC Engineer/Lab
Manager

FCC TO CANADA STANDARD CORRELATION MATRIX

Canadian Standard	Canadian Section	FCC Standard	FCC Section	Test Description
RSS GEN	7.1.4	47CFR	15.203	Antenna Connector Requirements
RSS GEN	7.2.1	47CFR	15.35(c)	Pulsed Operation
RSS GEN	7.2.2	47CFR	15.207	AC Mains Conducted Emissions Requirement
RSS 210	2.1	47CFR	15.215(c)	Frequency Stability Recommendation
RSS 210	2.2	47CFR	15.205	Restricted Bands of Operation
RSS 210	2.6	47CFR	15.209	General Radiated Emissions Requirement
RSS 210	A2.6	47CFR	15.225(a-c)	Fundamental and Emissions Mask Requirements
RSS 210	A2.6	NA	NA	$\pm 150\text{kHz}$ to $\pm 450\text{kHz}$ Emissions Requirement
RSS 210	A2.6	47CFR	15.225(d)	Out of band emissions
RSS 210	A2.6	47CFR	15.225(e)	Carrier Stability
	IC 3082A-1		784962	Site File No.

CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

FCC 15.31(m) Number Of Channels

This device operates on a single channel.

FCC 15.33(a) Frequency Ranges Tested

15.207 Conducted Emissions: 150 kHz – 30 MHz

15.209 Radiated Emissions: 9 kHz – 1000 MHz

FCC 15.203 Antenna Requirements

The antenna is an integral part of the EUT and is non-removable; therefore the EUT complies with Section 15.203 of the FCC rules.

EUT Operating Frequency

The EUT was operating at 13.56 MHz.

Temperature And Humidity During Testing

The temperature during testing was within $+15^{\circ}\text{C}$ and $+35^{\circ}\text{C}$.

The relative humidity was between 20% and 75%.

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The customer declares the EUT tested by CKC Laboratories was representative of a production unit.

The following model has been tested by CKC Laboratories:

6171B bioCLASS RWKL550 and 6181B bioCLASS RWKLB575

Since the time of testing the manufacturer has chosen to use the following model name in its place. Any differences between the names does not affect their EMC characteristics and therefore complies to the level of testing equivalent to the tested model name shown on the data sheets:

6171Bxx bioCLASS RWKL550 and 6181Bxx bioCLASS RWKLB575.

The manufacturer states that the following additional models are identical electrically to the one which was tested, or any differences between them do not affect their EMC characteristics, and therefore they comply to the level of testing equivalent to the tested models.

6170B bioCLASS RKL55, 6180B bioCLASS RKL57 and 6190B bioCLASS BIO500

EQUIPMENT UNDER TEST

bioCLASS Reader

Manuf: HID Global Corporation
Model: 6171Bxx bioCLASS RWKL550
Serial: 032207
FCC ID: pending

bioCLASS Reader

Manuf: HID Global Corporation
Model: 6181Bxx bioCLASS RWKLB575
Serial: 032207
FCC ID: pending

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

DC Power Supply

Manuf: Topward Electric Instruments Co., Ltd.
Model: TPS-2000
Serial: 920035

REPORT OF EMISSIONS MEASUREMENTS

TESTING PARAMETERS

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits to determine compliance. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dB μ V/m, the spectrum analyzer reading in dB μ V was corrected by using the following formula. This reading was then compared to the applicable specification limit to determine compliance.

SAMPLE CALCULATIONS		
	Meter reading	(dB μ V)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dB μ V/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. The following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used. When conducted emissions testing was performed, a 10 dB external attenuator was used with internal offset correction in the analyzer.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the highest readings, this is indicated as a "Q" or an "A" in the appropriate table. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the spectrum analyzer/receiver readings were recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the measuring device called "peak hold," the measuring device had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the quasi-peak detector.

Average

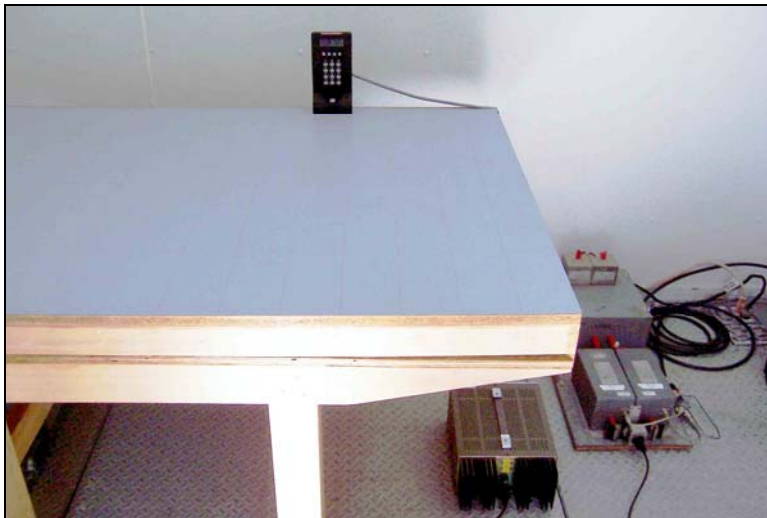
For certain frequencies, average measurements may be made using the spectrum analyzer/receiver. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point the measuring device is set into the linear mode and the scan time is reduced.

FCC 15.207 CONDUCTED EMISSIONS

Test Setup Photos



6171B Front



6181B Front



6171B Side



6181B Side

Test Data Sheets

Test Location: CKC Laboratories •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID Global Corporation**

Specification: **FCC 15.207 - AVE**

Work Order #: **86370**

Date: 3/30/2007

Test Type: **Conducted Emissions**

Time: 14:54:34

Equipment: **bioCLASS Reader**

Sequence#: 3

Manufacturer: HID Global Corporation

Tested By: Mike Wilkinson

Model: 6171B bioCLASS RWKL550

120V 60Hz

S/N: 032207

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
150kHz HP Filter TTE	G7754	03/09/2006	03/09/2008	02608
LISN, 8028-50-TS-24-BNC	8379276, 280	06/03/2005	06/03/2007	1248 & 1249

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
bioCLASS Reader*	HID Global Corporation	6171B bioCLASS RWKL550	032207

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

Equipment is a bioCLASS Reader operating on a frequency of 13.56MHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. Frequency Range Investigated: 150 kHz to 30 MHz. Temperature: 20°C, Relative Humidity: 43%. Unit has RS232.

Transducer Legend:

T1=LISN Insertion Loss s/n276	T2=Filter 150kHz HP AN02608
T3=Cable - Site D LISN 100k-30M	

Measurement Data:

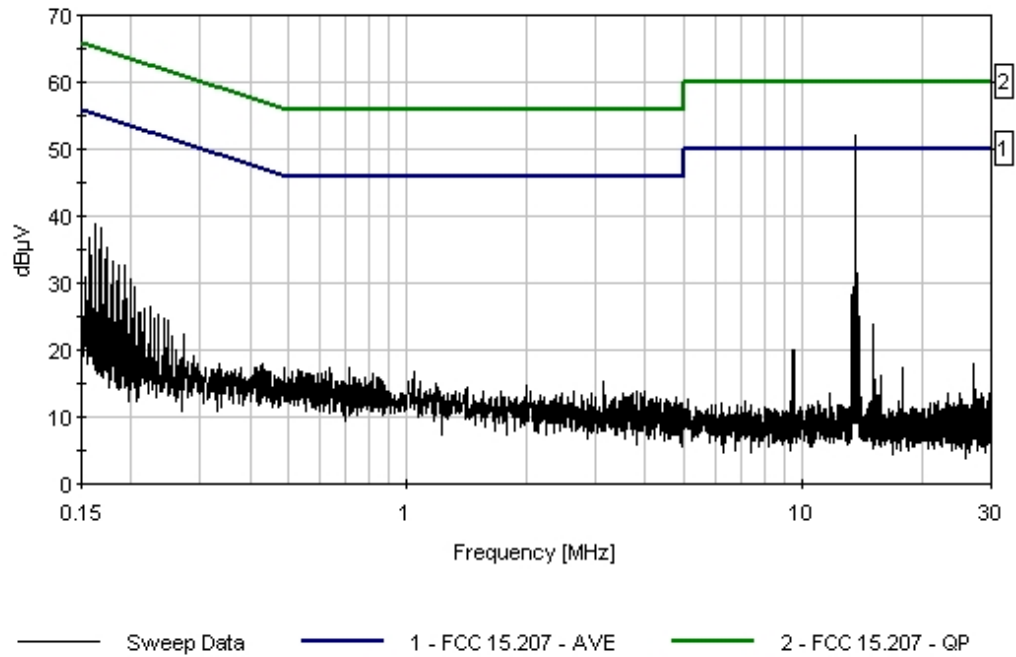
Reading listed by margin.

Test Lead: Black

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	13.561M	22.2	+0.5	+0.1	+10.9		+0.0	33.7	50.0	-16.3	Black
Ave											
^	13.561M	41.0	+0.5	+0.1	+10.9		+0.0	52.5	50.0	+2.5	Black
3	162.363k	25.0	+0.4	+1.7	+11.7		+0.0	38.8	55.3	-16.5	Black
4	168.907k	25.1	+0.4	+0.9	+11.7		+0.0	38.1	55.0	-16.9	Black
5	9.480M	21.5	+0.5	+0.1	+10.8		+0.0	32.9	50.0	-17.1	Black

6	17.830M	14.3	+0.4	+0.2	+10.9	+0.0	25.8	50.0	-24.2	Black
7	15.450M	11.8	+0.4	+0.1	+10.8	+0.0	23.1	50.0	-26.9	Black
8	27.125M	5.7	+0.4	+0.1	+11.0	+0.0	17.2	50.0	-32.8	Black

CKC Laboratories Date: 3/30/2007 Time: 14:54:34 HID Global W/O#: 86370
 FCC 15.207 - AVE Test Lead: Black 120V 60Hz Sequence#: 3
 HID Global M/N 6171B bioCLASS RWLK550



Test Location: CKC Laboratories •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID Global Corporation**

Specification: **FCC 15.207 - AVE**

Work Order #: **86370**

Date: 3/30/2007

Test Type: **Conducted Emissions**

Time: 15:01:41

Equipment: **bioCLASS Reader**

Sequence#: 4

Manufacturer: HID Global Corporation

Tested By: Mike Wilkinson

Model: 6171B bioCLASS RWKL550

120V 60Hz

S/N: 032207

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
150kHz HP Filter TTE	G7754	03/09/2006	03/09/2008	02608
LISN, 8028-50-TS-24-BNC	8379276, 280	06/03/2005	06/03/2007	1248 & 1249

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
bioCLASS Reader*	HID Global Corporation	6171B bioCLASS RWKL550	032207

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

Equipment is a BioCLASS Reader operating on a frequency of 13.56MHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. Frequency Range Investigated: 150 kHz to 30 MHz. Temperature: 20°C, Relative Humidity: 43%. Unit has RS232.

Transducer Legend:

T1=LISN Insertion Loss s/n280	T2=Filter 150kHz HP AN02608
T3=Cable - Site D LISN 100k-30M	

Measurement Data:

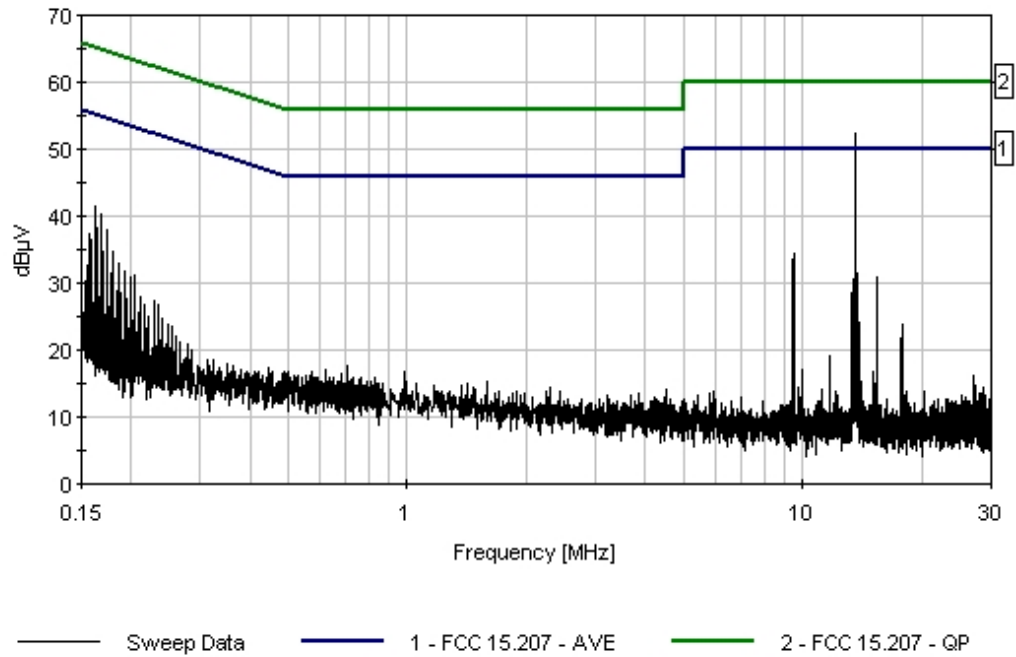
Reading listed by margin.

Test Lead: White

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	Dist dB	Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	162.363k	27.7	+0.3	+1.7	+11.7	+0.0		41.4	55.3	-13.9	White
2	168.180k	27.4	+0.3	+1.0	+11.7	+0.0		40.4	55.0	-14.6	White
3	9.482M	22.9	+0.5	+0.1	+10.8	+0.0		34.3	50.0	-15.7	White
4	174.725k	25.5	+0.3	+0.3	+11.7	+0.0		37.8	54.7	-16.9	White
5	13.561M	21.4	+0.4	+0.1	+10.9	+0.0		32.8	50.0	-17.2	White
	Ave										
^	13.561M	40.9	+0.4	+0.1	+10.9	+0.0		52.3	50.0	+2.3	White

7	17.830M	16.1	+0.4	+0.2	+10.9	+0.0	27.6	50.0	-22.4	White
8	15.440M	16.3	+0.4	+0.1	+10.8	+0.0	27.6	50.0	-22.4	White
9	27.123M	5.1	+0.5	+0.1	+11.0	+0.0	16.7	50.0	-33.3	White

CKC Laboratories Date: 3/30/2007 Time: 15:01:41 HID Global WO#: 86370
 FCC 15.207 - AVE Test Lead: White 120V 60Hz Sequence#: 4
 HID Global M/N 6171B bioCLASS RWLK550



Test Location: CKC Laboratories •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID Global Corporation**

Specification: **FCC 15.207 - AVE**

Work Order #: **86370**

Date: 3/30/2007

Test Type: **Conducted Emissions**

Time: 15:28:43

Equipment: **bioCLASS Reader**

Sequence#: 6

Manufacturer: HID Global Corporation

Tested By: Mike Wilkinson

Model: 6181B bioCLASS RWKLB575

120V 60Hz

S/N: 032207

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
150kHz HP Filter TTE	G7754	03/09/2006	03/09/2008	02608
LISN, 8028-50-TS-24-BNC	8379276, 280	06/03/2005	06/03/2007	1248 & 1249

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
bioCLASS Reader*	HID Global Corporation	6181B bioCLASS RWKLB575	032207

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

Equipment is a BioCLASS Reader operating on a frequency of 13.56MHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. Frequency Range Investigated: 150 kHz to 30 MHz. Temperature: 20°C, Relative Humidity: 43%. Unit has RS232.

Transducer Legend:

T1=LISN Insertion Loss s/n276	T2=Filter 150kHz HP AN02608
T3=Cable - Site D LISN 100k-30M	

Measurement Data:

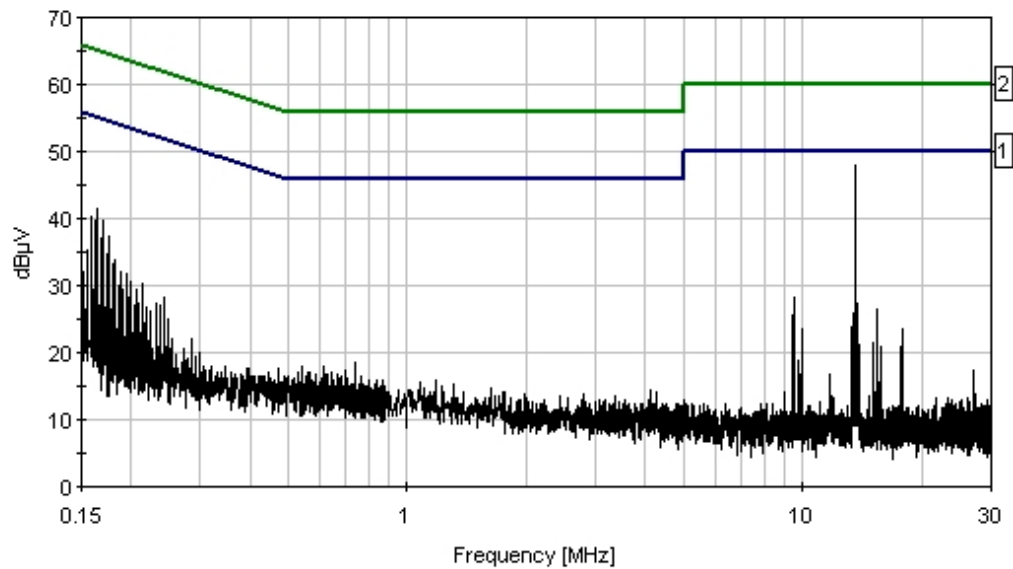
Reading listed by margin.

Test Lead: Black

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	Dist dB	Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	164.544k	28.1	+0.4	+1.4	+11.7	+0.0		41.6	55.2	-13.6	Black
2	158.727k	26.2	+0.4	+2.1	+11.6	+0.0		40.3	55.5	-15.2	Black
3	170.362k	26.8	+0.4	+0.8	+11.7	+0.0		39.7	54.9	-15.2	Black
4	161.635k	25.9	+0.4	+1.7	+11.7	+0.0		39.7	55.4	-15.7	Black
5	176.907k	25.1	+0.4	+0.3	+11.7	+0.0		37.5	54.6	-17.1	Black
6	167.453k	24.0	+0.4	+1.1	+11.7	+0.0		37.2	55.1	-17.9	Black

7	13.561M	18.8	+0.5	+0.1	+10.9	+0.0	30.3	50.0	-19.7	Black
Ave										
^	13.561M	36.3	+0.5	+0.1	+10.9	+0.0	47.8	50.0	-2.2	Black
9	173.271k	22.2	+0.4	+0.5	+11.7	+0.0	34.8	54.8	-20.0	Black
10	155.090k	20.7	+0.4	+2.5	+11.6	+0.0	35.2	55.7	-20.5	Black
11	27.122M	5.1	+0.4	+0.1	+11.0	+0.0	16.6	50.0	-33.4	Black

CKC Laboratories Date: 3/30/2007 Time: 15:28:43 HID Global WWO#: 86370
 FCC 15.207 - AVE Test Lead: Black 120V 60Hz Sequence#: 6
 HID Global M/N 6181B bioCLASS RWLKB575



— Sweep Data — 1 - FCC 15.207 - AVE — 2 - FCC 15.207 - QP

Test Location: CKC Laboratories •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID Global Corporation**

Specification: **FCC 15.207 - AVE**

Work Order #: **86370**

Date: 3/30/2007

Test Type: **Conducted Emissions**

Time: 15:18:58

Equipment: **bioCLASS Reader**

Sequence#: 5

Manufacturer: HID Global Corporation

Tested By: Mike Wilkinson

Model: 6181B bioCLASS RWKLB575

120V 60Hz

S/N: 032207

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
150kHz HP Filter TTE	G7754	03/09/2006	03/09/2008	02608
LISN, 8028-50-TS-24-BNC	8379276, 280	06/03/2005	06/03/2007	1248 & 1249

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
bioCLASS Reader*	HID Global Corporation	6181B bioCLASS RWKLB575	032207

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

Equipment is a BioCLASS Reader operating on a frequency of 13.56MHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. Frequency Range Investigated: 150 kHz to 30 MHz. Temperature: 20°C, Relative Humidity: 43%. Unit has RS232.

Transducer Legend:

T1=LISN Insertion Loss s/n280	T2=Filter 150kHz HP AN02608
T3=Cable - Site D LISN 100k-30M	

Measurement Data:

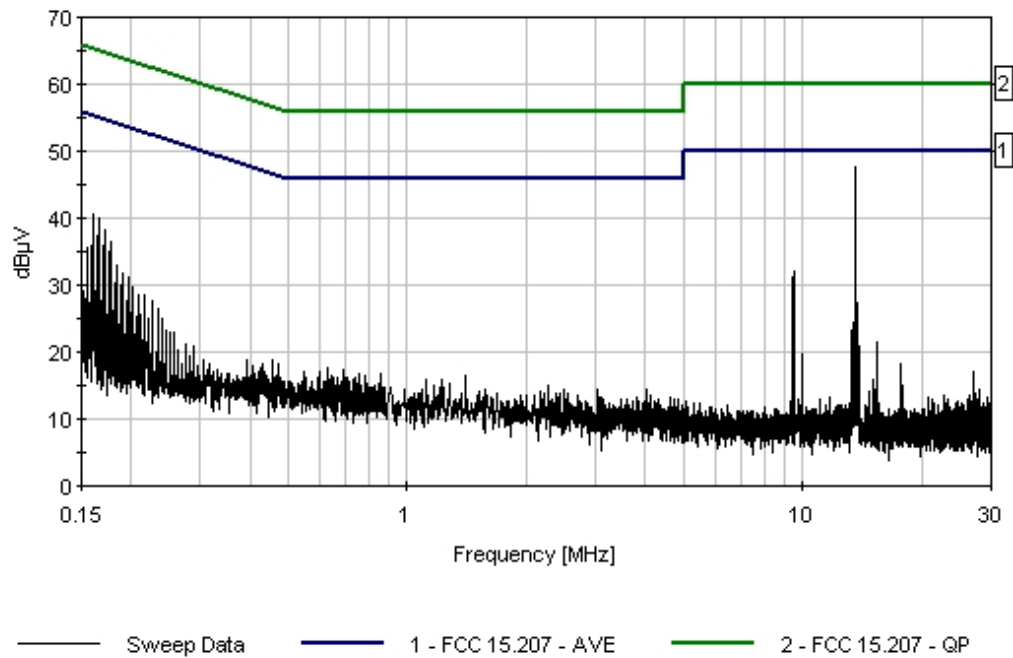
Reading listed by margin.

Test Lead: White

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	Dist dB	Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	160.908k	26.9	+0.3	+1.8	+11.6	+0.0		40.6	55.4	-14.8	White
2	166.726k	26.9	+0.3	+1.2	+11.7	+0.0		40.1	55.1	-15.0	White
3	172.543k	25.7	+0.3	+0.6	+11.7	+0.0		38.3	54.8	-16.5	White
4	163.817k	24.0	+0.3	+1.5	+11.7	+0.0		37.5	55.3	-17.8	White
5	179.088k	24.3	+0.3	+0.3	+11.7	+0.0		36.6	54.5	-17.9	White
6	9.482M	20.7	+0.5	+0.1	+10.8	+0.0		32.1	50.0	-17.9	White
7	169.635k	22.9	+0.3	+0.9	+11.7	+0.0		35.8	55.0	-19.2	White

8	176.179k	22.8	+0.3	+0.3	+11.7	+0.0	35.1	54.7	-19.6	White
9	13.561M Ave	15.6	+0.4	+0.1	+10.9	+0.0	27.0	50.0	-23.0	White
^	13.561M	36.2	+0.4	+0.1	+10.9	+0.0	47.6	50.0	-2.4	White
11	27.123M	5.7	+0.5	+0.1	+11.0	+0.0	17.3	50.0	-32.7	White

CKC Laboratories Date: 3/30/2007 Time: 15:18:58 HID Global W/O#: 86370
 FCC 15.207 - AVE Test Lead: White 120V 60Hz Sequence#: 5
 HID Global M/N 6181B bioCLASS RWLKB575

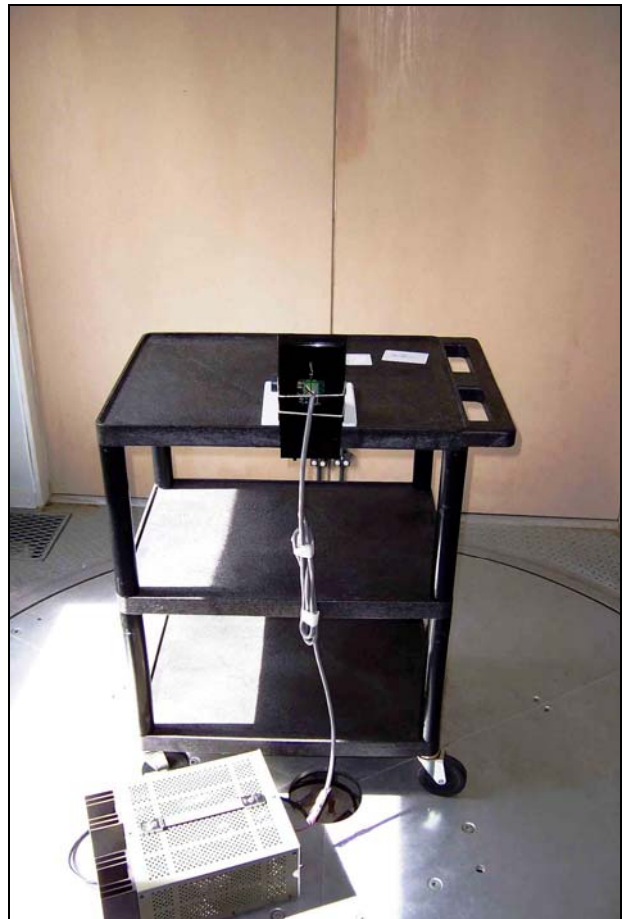


FCC 15.209 RADIATED EMISSIONS

Test Setup Photos



6171B Front



6171B Back



6181B Front



6181B Back

Test Data Sheets

Test Location: CKC Laboratories •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID Global**
 Specification: **FCC 15.209**
 Work Order #: **86370** Date: 4/2/2007
 Test Type: **Radiated Scan** Time: 10:22:25
 Equipment: **bioCLASS Reader** Sequence#: 12
 Manufacturer: HID Global Tested By: Mike Wilkinson
 Model: 6171B bioCLASS RWLK550
 S/N: 032207

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
EMCO Loop Antenna	1074	05/13/2005	05/13/2007	00226

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
bioCLASS Reader*	HID Global Corporation	6171B bioCLASS RWLK550	032207

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

Equipment is a BioCLASS Reader operating on a frequency of 13.56MHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. Frequency Range Investigated: 9kHz to 30 MHz, Test data is corrected for proper test distance using 40dB per decade correction factor in accordance with 15.31. Temperature: 20°C, Relative Humidity: 43%. Unit has RS232.

Transducer Legend:

T1=Cable - Site D 10m 9k-1G	T2=Mag Loop - AN 00226 - 9kHz-30M
T3=15.31 10m 40dB/Dec Correction	

Measurement Data: Reading listed by margin. Test Distance: 10 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	27.123M	11.4	+1.4	+6.6	-20.0		+0.0	-0.6	29.5	-30.1	Horiz
2	27.123M	7.8	+1.4	+6.6	-20.0		+0.0	-4.2	29.5	-33.7	Vert

Test Location: CKC Laboratories •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID Global Corporation**

Specification: **FCC 15.209**

Work Order #: **86370**

Date: 4/2/2007

Test Type: **Radiated Scan**

Time: 11:00:15

Equipment: **bioCLASS Reader**

Sequence#: 13

Manufacturer: HID Global Corporation

Tested By: Mike Wilkinson

Model: 6181B bioCLASS RWLKB575

S/N: 032207

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
EMCO Loop Antenna	1074	05/13/2005	05/13/2007	00226

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
bioCLASS Reader*	HID Global Corporation	6181B bioCLASS RWLKB575	032207

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

Equipment is a BioCLASS Reader operating on a frequency of 13.56MHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. Frequency Range Investigated: 9kHz to 30 MHz. Test data is corrected for proper test distance using 40dB per decade correction factor in accordance with 15.31. Temperature: 20°C, Relative Humidity: 43%. Unit has RS232.

Transducer Legend:

T1=Cable - Site D 10m 9k-1G	T2=Mag Loop - AN 00226 - 9kHz-30M
T3=15.31 10m 40dB/Dec Correction	

Measurement Data:

Reading listed by margin.

Test Distance: 10 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	Dist dB	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	27.127M	8.9	+1.4	+6.6	-20.0	+0.0	-3.1	29.5	-32.6	Horiz
2	27.125M	5.2	+1.4	+6.6	-20.0	+0.0	-6.8	29.5	-36.3	Vert

Test Location: CKC Laboratories •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID Global Corporation**

Specification: **FCC 15.209**

Work Order #: **86370**

Date: 3/30/2007

Test Type: **Radiated Scan**

Time: 14:28:47

Equipment: **bioCLASS Reader**

Sequence#: 2

Manufacturer: HID Global Corporation

Tested By: Mike Wilkinson

Model: 6171B bioCLASS RWKL550

S/N: 032207

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Chase CBL6111C Bilog	2456	12/30/2006	12/30/2008	01991
HP 8447D Preamp	1937A02604	03/14/2007	03/14/2009	00099

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
bioCLASS Reader*	HID Global Corporation	6171B bioCLASS RWJL550	032207

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

Equipment is a BioCLASS Reader operating on a frequency of 13.56MHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. Frequency Range Investigated: 30-1000 MHz. Temperature: 20°C, Relative Humidity: 43%. Unit has RS232.

Transducer Legend:

T1=AMP AN00099	T2=Bilog Site D
T3=Cable - Site D 10m 9k-1G	

Measurement Data:

Reading listed by margin.

Test Distance: 10 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	54.247M	43.6	-27.1	+7.3	+2.0	+10.0	35.8	40.0	-4.2	Vert
	QP									
^	54.246M	44.8	-27.1	+7.3	+2.0	+10.0	37.0	40.0	-3.0	Vert
3	40.691M	38.3	-27.2	+12.0	+1.7	+10.0	34.8	40.0	-5.2	Vert
	QP									
^	40.686M	40.0	-27.2	+12.0	+1.7	+10.0	36.5	40.0	-3.5	Vert
5	81.365M	36.2	-27.1	+6.9	+2.5	+10.0	28.5	40.0	-11.5	Vert
6	40.686M	28.3	-27.2	+12.0	+1.7	+10.0	24.8	40.0	-15.2	Horiz
7	135.616M	30.1	-27.0	+11.0	+3.4	+10.0	27.5	43.5	-16.0	Vert

8	54.249M	31.1	-27.1	+7.3	+2.0	+10.0	23.3	40.0	-16.7	Horiz
9	271.231M	27.8	-26.4	+12.4	+5.3	+10.0	29.1	46.0	-16.9	Vert
10	257.679M	26.1	-26.4	+12.1	+5.1	+10.0	26.9	46.0	-19.1	Vert
11	230.552M	27.8	-26.5	+10.7	+4.7	+10.0	26.7	46.0	-19.3	Vert
12	216.982M	28.8	-26.6	+9.7	+4.4	+10.0	26.3	46.0	-19.7	Vert
13	203.439M	25.8	-26.7	+8.6	+4.2	+10.0	21.9	43.5	-21.6	Vert
14	352.598M	21.1	-26.7	+14.3	+5.6	+10.0	24.3	46.0	-21.7	Vert
15	352.598M	21.0	-26.7	+14.3	+5.6	+10.0	24.2	46.0	-21.8	Vert
16	244.113M	22.5	-26.4	+11.6	+4.9	+10.0	22.6	46.0	-23.4	Vert

Test Location: CKC Laboratories •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID Global Corporation**

Specification: **FCC 15.209**

Work Order #: **86370**

Date: 3/30/2007

Test Type: **Radiated Scan**

Time: 13:31:24

Equipment: **bioCLASS Reader**

Sequence#: 1

Manufacturer: HID Global Corporation

Tested By: Mike Wilkinson

Model: 6181B bioCLASS RWKLB575

S/N: 032207

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Chase CBL6111C Bilog	2456	12/30/2006	12/30/2008	01991
HP 8447D Preamp	1937A02604	03/14/2007	03/14/2009	00099

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
bioCLASS Reader*	HID Global Corporation	6181B bioCLASS RWKLB575	032207

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

Equipment is a BioCLASS Reader operating on a frequency of 13.56MHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. Frequency Range Investigated: 30-1000 MHz. Temperature: 20°C, Relative Humidity: 43%. Unit has RS232.

Transducer Legend:

T1=AMP AN00099	T2=Bilog Site D
T3=Cable - Site D 10m 9k-1G	

Measurement Data:

Reading listed by margin.

Test Distance: 10 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	54.251M	44.1	-27.1	+7.3	+2.0		+10.0	36.3	40.0	-3.7	Verti
	QP										
^	54.245M	45.0	-27.1	+7.3	+2.0		+10.0	37.2	40.0	-2.8	Verti
3	40.688M	38.1	-27.2	+12.0	+1.7		+10.0	34.6	40.0	-5.4	Verti
	QP										
^	40.672M	40.0	-27.2	+12.0	+1.7		+10.0	36.5	40.0	-3.5	Verti
5	311.920M	31.8	-26.5	+13.2	+5.5		+10.0	34.0	46.0	-12.0	Verti
6	325.479M	29.8	-26.6	+13.5	+5.6		+10.0	32.3	46.0	-13.7	Verti
7	339.035M	29.1	-26.6	+13.9	+5.6		+10.0	32.0	46.0	-14.0	Verti

8	271.220M	30.6	-26.4	+12.4	+5.3	+10.0	31.9	46.0	-14.1	Verti
9	81.376M	32.2	-27.1	+6.9	+2.5	+10.0	24.5	40.0	-15.5	Verti
10	40.673M	27.8	-27.2	+12.0	+1.7	+10.0	24.3	40.0	-15.7	Horiz
11	284.795M	28.0	-26.4	+12.6	+5.4	+10.0	29.6	46.0	-16.4	Verti
12	54.261M	30.9	-27.1	+7.3	+2.0	+10.0	23.1	40.0	-16.9	Horiz
13	230.557M	27.2	-26.5	+10.7	+4.7	+10.0	26.1	46.0	-19.9	Verti
14	135.621M	25.9	-27.0	+11.0	+3.4	+10.0	23.3	43.5	-20.2	Verti
15	257.680M	24.1	-26.4	+12.1	+5.1	+10.0	24.9	46.0	-21.1	Verti
16	67.815M	27.3	-27.1	+5.8	+2.3	+10.0	18.3	40.0	-21.7	Verti
17	149.182M	24.4	-26.9	+10.4	+3.6	+10.0	21.5	43.5	-22.0	Verti
18	203.435M	24.1	-26.7	+8.6	+4.2	+10.0	20.2	43.5	-23.3	Verti

FCC 15.225 RADIATED EMISSIONS

Test Setup Photos



6171B Front



6171B Back



6181B Front



6181B Back

Test Data Sheets

Test Location: CKC Laboratories •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID Global Corporation**

Specification: **47 CFR 15.225 Mask**

Work Order #: **86370**

Date: 4/2/2007

Test Type: **Radiated Scan**

Time: 09:10:30

Equipment: **bioCLASS Reader**

Sequence#: 11

Manufacturer: HID Global Corporation

Tested By: Mike Wilkinson

Model: 6171B bioCLASS RWLK550

S/N: 032207

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
EMCO Loop Antenna	1074	05/13/2005	05/13/2007	00226

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
bioCLASS Reader*	HID Global Corporation	6171B bioCLASS RWLK550	032207

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

Equipment is a BioCLASS Reader operating on a frequency of 13.56MHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. Frequency Range Investigated: Carrier. Test data is corrected for proper test distance using 40dB per decade correction factor in accordance with 15.31. Temperature: 20°C, Relative Humidity: 43%. Unit has RS232.

Transducer Legend:

T1=Cable - Site D 10m 9k-1G	T2=Mag Loop - AN 00226 - 9kHz-30M
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Measurement Data: Reading listed by margin. Test Distance: 10 Meters

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	dB	dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	13.561M	48.4	+1.0	+9.6			-19.0	40.0	84.0	-44.0	Horiz
2	13.562M	44.6	+1.0	+9.6			-19.0	36.2	84.0	-47.8	Horiz

Test Location: CKC Laboratories •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID Global Corporation**

Specification: **47 CFR 15.225 Mask**

Work Order #: **86370**

Date: 4/2/2007

Test Type: **Radiated Scan**

Time: 11:18:32

Equipment: **bioCLASS Reader**

Sequence#: 14

Manufacturer: HID Global Corporation

Tested By: Mike Wilkinson

Model: 6181B bioCLASS RWLKB575

S/N: 032207

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
EMCO Loop Antenna	1074	05/13/2005	05/13/2007	00226

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
bioCLASS Reader*	HID Global Corporation	6181B bioCLASS RWLKB575	032207

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

Equipment is a BioCLASS Reader operating on a frequency of 13.56MHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. Frequency Range Investigated: Carrier. Test data is corrected for proper test distance using 40dB per decade correction factor in accordance with 15.31. Temperature: 20°C, Relative Humidity: 43%. Unit has RS232.

Transducer Legend:

T1=Cable - Site D 10m 9k-1G	T2=Mag Loop - AN 00226 - 9kHz-30M
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Measurement Data:

Reading listed by margin.

Test Distance: 10 Meters

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	Dist dB	Corr dB	Spec dB μ V/m	Margin dB	Polar Ant
1	13.562M	48.0	+1.0	+9.6	-19.0	39.6	84.0	-44.4	Vert
2	13.562M	46.4	+1.0	+9.6	-19.0	38.0	84.0	-46.0	Horiz

FCC 15.225/RSS-210 EMISSIONS MASK

Test Equipment

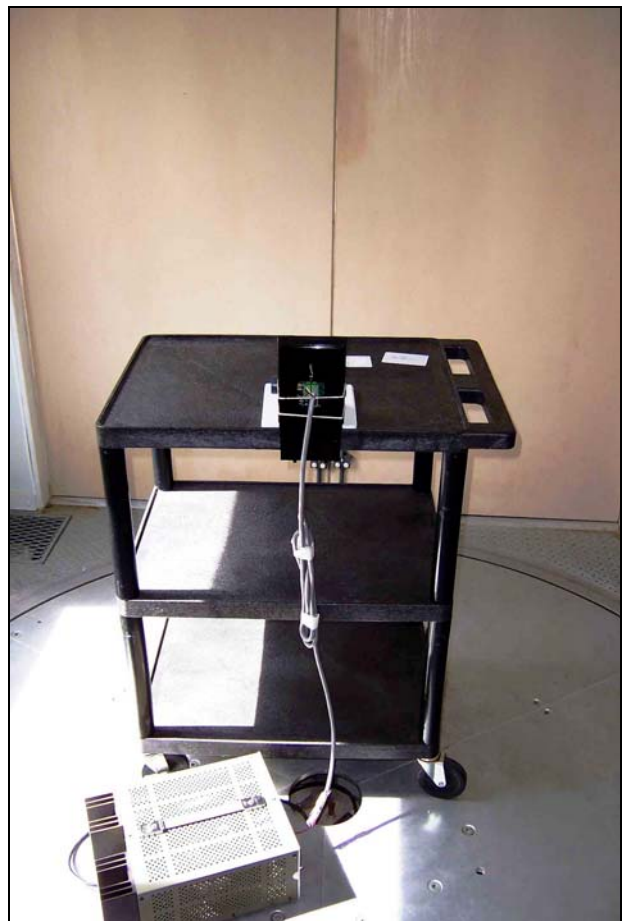
Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
EMCO Loop Antenna	1074	05/13/2005	05/13/2007	00226

Test Conditions: Equipment is a BioCLASS Reader operating on a frequency of 13.56MHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. Temperature: 20°C, Relative Humidity: 43%. Unit has RS232.

Test Setup Photos



6171B Front



6171B Back

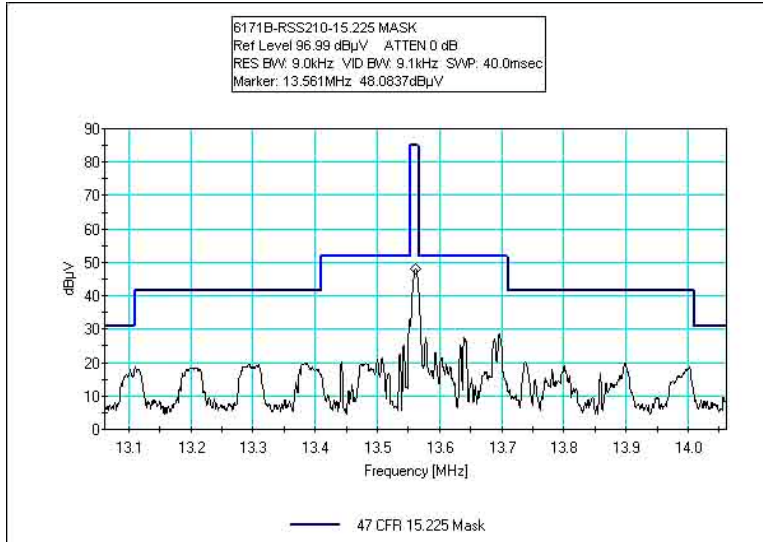


6181B Front

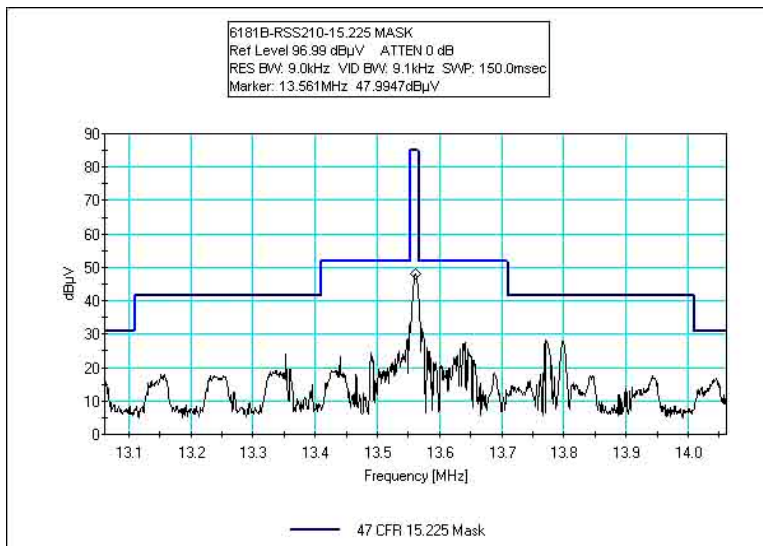


6181B Back

FCC 15.225/RSS-210 EMISSIONS MASK - 6171B



FCC 15.225/RSS-210 EMISSIONS MASK - 6181B



RSS-210 OCCUPIED BANDWIDTH

Test Equipment

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
EMCO Loop Antenna	1074	05/13/2005	05/13/2007	00226

Test Conditions: Equipment is a BioCLASS Reader operating on a frequency of 13.56MHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. Temperature: 20°C, Relative Humidity: 43%. Unit has RS232.

Test Setup Photos



6171B Front



6171B Back

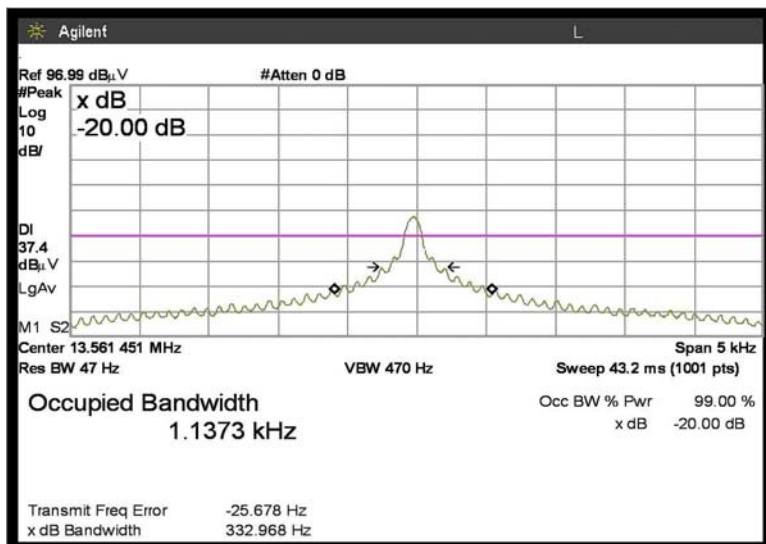


6181B Front

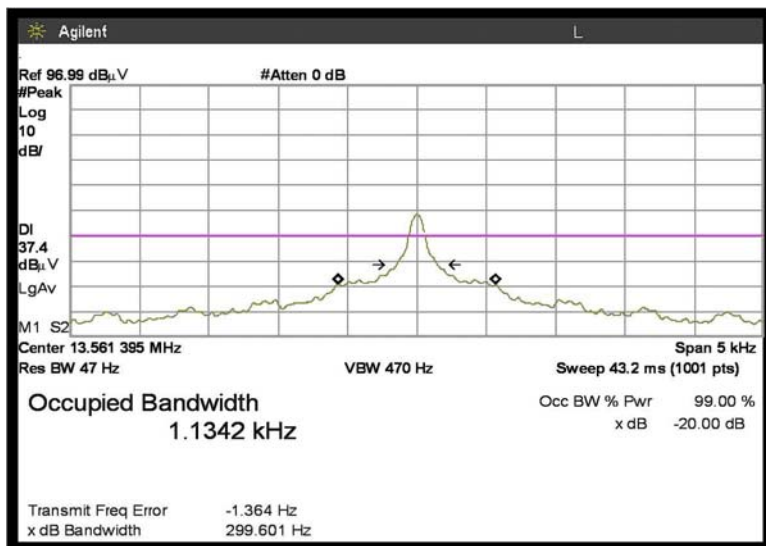


6181B Back

RSS-210 OCCUPIED BANDWIDTH - 6171B



RSS-210 OCCUPIED BANDWIDTH - 6181B



FREQUENCY STABILITY

Test Equipment

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	1/3/2007	1/3/2009	2660
Solar Loop Sensor	N/A	3/4/2007	3/4/2009	170
Thermotron Temperature Chamber	11899	12/21/2006	12/21/2008	1879
HP 6205C Dual DC Power Supply	2228A01775	8/15/2005	8/15/2007	762

Test Setup Photos



Test Conditions: Equipment is placed inside of a temperature chamber. EUT power is provided via bench supply. Power variations are performed while monitoring with a digital voltage meter. Note: Data is not provided for the model 6171B bioCLASS RWKL550 as it contains the same transmitter and housing as the model tested.

Test Data

Device Model #: 6181B bioCLASS RWKLB575
Operating Voltage: 12 VDC/VAC
Frequency Limit: 0.01 PPM/%

Temperature Variations

Channel Frequency:		Channel 1 (MHz)	Dev. (MHz)
		13.56175	
Temp (C)	Voltage		
-30	12		
-20	12	13.56143	0.00032
-10	12	13.56148	0.00027
0	12	13.56152	0.00023
10	12	13.56171	0.00004
20	12	13.56175	0.00000
30	12	13.56150	0.00025
40	12	13.56143	0.00032
50	12	13.56130	0.00045

Voltage Variations (±15%)

20	10.2	13.56173	0.00002
20	12	13.56175	0.00000
20	13.8	13.56171	0.00004

Max Deviation (MHz)	0.00045
Max Deviation (%)	0.00332
PASS	

Tested By: Mike Wilkinson